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RECORDS OF MEETINGS.

Nine hundred and fifty-ninth Meeting.

OCTOBER 11, 1905. — STATED MEETING.

The Academy met at the Jefferson Physical Laboratory, Cambridge.

The PRESIDENT in the chair.

There were present thirty-nine Fellows.

The Corresponding Secretary read the following letters: —

From Samuel Williston, accepting Fellowship; from Charles E. Munroe, acknowledging his election as Associate Fellow; from G. Stanley Hall, resigning Fellowship; from the University of Illinois, inviting delegates to the installation of Edmund J. James as President of the University; from Dr. Gustav Fischer, of Jena, soliciting subscriptions for a Memorial to Ernst Abbe; from the Société Entomologique de Belgique, announcing the celebration of its fiftieth anniversary and the publication of a Jubilee volume which will be given to the Academy; from the Directors of the Biblioteca Nazionale Centrale, of Florence, announcing the death of its Librarian, Comm. Desiderio Chilovi; from the Kön. böhmische Gesellschaft der Wissenschaften of Prag, announcing the death of its President, W. W. Ritt. von Tomek; from the Académie royale, d'Archeologie de Belgique Anvers, inviting Members of the Academy to be present at the celebration of the seventy-fifth anniversary of Belgian independence.

The Chair announced the following deaths: —

Edward S. Wood, Resident Fellow in Class I., Section 3; Otto Struve, Foreign Honorary Member in Class I., Section 1.

The following gentlemen were elected members of the Academy: —

Louis Bell, of Boston, to be a Resident Fellow in Class I., Section 2 (Physics).

Arthur Edwin Kennelly, of Cambridge, to be a Resident Fellow in Class I., Section 4 (Technology and Engineering).

Charles Gross, of Cambridge, to be a Resident Fellow in Class III., Section 3 (Political Economy and History).

Kuno Francke, of Cambridge, to be a Resident Fellow in Class III., Section 4 (Literature and the Fine Arts).

Herbert Langford Warren, of Cambridge, to be a Resident Fellow in Class III., Section 4.

Michael Idvorsky Pupin, of New York, to be an Associate Fellow in Class I., Section 2 (Physics).

Wilhelm Ostwald, of Leipzig, to be a Foreign Honorary Member in Class I., Section 3 (Chemistry).

Samuel Henry Butcher, of London, to be a Foreign Honorary Member in Class III., Section 4 (Literature and the Fine Arts), in place of the late Lesley Stephen.

Mr. A. Lawrence Lowell was appointed a delegate to attend the installation of Edmund J. James as President of the University of Illinois, at Urbana, October 17–19, 1905.

The following votes were passed: —

Voted, That the action of the President, William W. Goodwin, in executing in the name and behalf of the Corporation a party wall agreement with the owner of estate numbered 30 on Newbury Street in Boston, dated May 29th, 1905, be and the same hereby is ratified and confirmed as the act of the Corporation.

Voted, That the action of the Treasurer in paying bills for the current expenses of the Academy, in the absence of any appropriation therefor, be hereby approved and confirmed.

Voted, That an appropriation of three thousand dollars ($3,000) be made for the General Expenses of the Academy, as of May, 1905, to be expended during the year 1905-1906.

Voted, That the Treasurer be authorized to sell and transfer any and all Stocks and Bonds belonging to the Academy,

with the written approval of one other member of the Finance Committee.

Voted, That the Treasurer be authorized to pay from the income of the General Fund one hundred and sixty dollars ($160) for labels to be used in distributing the publications of the Academy.

Voted, That eight hundred dollars ($800) be appropriated from the income of the Rumford Fund for publication and miscellaneous expenditures.

The Treasurer proposed certain amendments to the Statutes and Standing Votes: —

It was then *Voted*, That the draft of the Statutes and Standing Votes of the Academy, presented by the Treasurer, be referred to a Committee of five, consisting of the President, Recording Secretary, and Treasurer, together with two other members of the Academy, to be appointed by the President.

In accordance with the foregoing vote, the President appointed Professor Morris H. Morgan and Dr. Theodore Lyman members of the Committee to consider the revision of the Statutes and Standing Votes.

Professor John Trowbridge made a Communication on Slow Discharges of Electricity, with Experimental illustrations.

The following papers were presented by title: —

"On the Manner of Growth of a Current in a Nearly-Closed Electromagnet, as Influenced by the Width of the Air-gap." By B. O. Peirce.

"Bibliography of the Hall Effect, with some Titles of Papers on Allied Phenomena." By T. C. McKay. Presented by E. H. Hall.

"The Thermo-luminescence of Fluospar." By H. W. Morse. Presented by John Trowbridge.

"Gaseous and Liquid Inclusions in Fluospar." By H. W. Morse. Presented by John Trowbridge.

"Longitudinal Vibrations of Stretched Strings." By H. N. Davis. Presented by John Trowbridge.

"The Fluorescence of Sodium Vapor and the Resonance Ra-

diation of Electrons." By Robert W. Wood. Presented by Charles R. Cross.

"On a Postulate respecting a Certain Form of Deviation from the Straight Line in a Plane." By Gustavus Hay.

"Slow Moving Electrical Luminous Effects." By John Trowbridge.

"Effect of Magnetic Field on Electric Discharges." By John Trowbridge.

Nine hundred and sixtieth Meeting.

NOVEMBER 8, 1905.

The Academy met at the house of Dr. Alexander Agassiz, Cambridge.

The PRESIDENT in the chair.

There were present eighty Fellows.

The Corresponding Secretary read the following letters: —

From the Sociedad Mexicana de Geografia y Estadistica, Mexico, inviting the Academy to participate in its celebration of the four hundredth anniversary of the birth of Christobal Colon, May 20, 1906; from Charles Gross, Kuno Francke, Herbert Langford Warren, and Albert Edwin Kennelly, accepting Resident Fellowship; from Michael Idvorsky Pupin, accepting Associate Fellowship; from Samuel Henry Butcher, accepting Foreign Honorary Membership; from William Everett, resigning Resident Fellowship; from Baroness von Richthofen, announcing the death of her husband; from the Gesellschaft für Erdkunde, Berlin, announcing a memorial service for Baron von Richthofen to take place October 29, 1905.

The Chair announced the death of Freiherr von Richthofen, Foreign Honorary Member in Class II., Section 1.

The following communications were given: —

"An Account of his Trip to the Eastern Pacific." By Professor Agassiz.

"The International Language, — Esperanto." By Professor Wilhelm Ostwald.

Remarks on Professor Ostwald's paper were made by Professors Morse and Lanman.

The following paper was presented by title: —

"The Electrostatic Field Surrounding Certain Columnar Elements." By P. W. Bridgman. Presented by B. O. Peirce.

Nine hundred and sixty-first Meeting.

DECEMBER 13, 1905.

The Academy met at the house of the President, in Cambridge.

The PRESIDENT in the chair.

There were present thirty-nine Fellows and one Foreign Honorary Member.

In the absence of the Recording Secretary, Professor M. H. Morgan was appointed Recording Secretary, *pro tempore*.

The President announced the following deaths: —

John Bartlett, Resident Fellow in Class III., Section 4; Edward Atkinson, Resident Fellow in Class III., Section 3.

The Corresponding Secretary read the following letters: —

From the Nobel Prize Committee, enclosing a circular relative to the prize in literature; and from Professor A. E. Dolbear, resigning Fellowship.

The following communications were given: —

Professor W. R. Ware — "Memoir of J. M. Barnard."

Professor W. M. Davis — "Notes on South Africa: the Dwyka Glacial Formation and the Karroo Basin Formation."

The following papers were presented by title: —

"The Expansibility and the Compressibility of Ether and of Alcohol in the Neighborhood of their Boiling Points." By Alpheus W. Smith. Presented by Edwin H. Hall.

"On Thermo-electric Heterogeneity in Various Alloys, especially German Silver." By Edwin H. Hall, L. L. Campbell, and S. B. Serviss.

"The Sense of Loudness." By W. C. Sabine.

"The Spectrum of Hydrogen in the Schumann Region of Short Wave Lengths." By Theodore Lyman.

"A Method of Determining Thermal Conductivity." By F. A. Laws, F. L. Bishop, and P. McJunkin.

"The Thermal Conductivity of Lead." By F. L. Bishop. Presented by F. A. Laws.

"The Transition Temperature of Sodic Bromide: a New Fixed Point in Thermometry." By T. W. Richards and R. C. Wells.

"A New Method of Standardizing Thermometers below Zero." By T. W. Richards and F. G. Jackson.

"On the Language of Vitruvius." By M. H. Morgan.

"Friction and Force due to Transpiration as Dependent on Pressure in Gases." By J. L. Hogg. Presented by John Trowbridge.

Nine hundred and sixty-second Meeting.

JANUARY 10, 1906. — STATED MEETING.

The Academy met in its house, 28 Newbury Street.

The PRESIDENT in the chair.

There were present thirty Fellows.

The President made a short address congratulating the Academy on having a home of its own.

The Corresponding Secretary read the following communications: —

From The Franklin Bicentennial Committee, inviting five members of the Academy to the exercises at Symphony Hall on Wednesday, January 17, 1906, in observance of the two hundredth anniversary of the birth of Benjamin Franklin; from G. Lecointe, Scientific Director of the Royal Observatory of Belgium, announcing a project of an International Association for the study of the Polar Regions, being the outcome of the Congress of Mons, held September 24, 1905.

The Committee on the Revision of the Statutes presented the following report: —

The Committee on the Revision of the Statutes of the American Academy respectfully submit a copy of the Revised Statutes and recommend their adoption in this form.

The changes made in the Statutes relate chiefly to the method of making Appropriations, to the approval and payment of Bills, and to the efficient management of the Treasurer's office. The Council is charged with the responsibility of reporting the Appropriations to the Academy, and for this purpose the Chairman of three Committees are made members of the Council in place of the three Vice-Presidents.

The calling of special Meetings is provided for, at which any action heretofore allowed at Stated Meetings may be taken.

Slight changes are made in the Nomination and Election of Fellows and Members, and a few verbal alterations are offered.

There has been a great disparity in the number of Resident Fellows belonging to each of the three Classes, and an Amendment to the Statutes is submitted to remedy this trouble.

The distribution of the publications of the Academy has been omitted from the Statutes and is authorized by the Standing Votes in which few changes have been made.

(Signed) W. W. Goodwin.
M. H. Morgan.
Charles P. Bowditch.
Wm. Watson.
Theodore Lyman.

Boston, January 10, 1906.

The Academy then proceeded to consider in detail the proposed changes in the Statutes.

Chapters I., III., IV., V., VI., VIII., IX., and XI., of the Statutes, and Nos. 2 and 8 of the Standing Votes were unanimously approved, but such marked differences of opinion were expressed in the discussion of Chapters II. and VII. that at the suggestion of the President the discussion of these changes was deferred to the meeting of February 14, and on the motion of the Recording Secretary, it was

Voted, To meet on adjournment February 14.

Professor Trowbridge then made the following communication: "Effect of Magnetic Field on Production of the X Rays."

At the request of the President, Dr. Bell gave a brief description of the electric lights just installed in the building, which were quite novel in character.

On motion of Professor W. M. Davis, a House Committee was established; the President appointed Messrs. Ware, Morgan, and Rotch as this Committee.

On motion of Professor Webster it was

Voted, That the thanks of the Academy be tendered to the Committee for their services in preparing this building for occupancy.

Nine hundred and sixty-third Meeting.

FEBRUARY 14, 1906. — ADJOURNED STATED MEETING.

The PRESIDENT in the chair.

There were present twenty-seven Fellows.

The Corresponding Secretary read the following letters:

From Freifrau von Richthofen, in appreciation of messages of sympathy on the death of her husband; from the Academy of Science of St. Louis, inviting the Academy to be represented at a dinner commemorative of its fiftieth anniversary, to be given March 10, 1906; from the American Philosophical Society, inviting the Academy to participate in the celebration of the two hundredth anniversary of the birth of Benjamin Franklin, to be held in Philadelphia on April 17, 18, 19, and 20, 1906; from the Royal Geographical Society of Australasia, Queensland, inviting the Academy to take part in the celebration of its twenty-first anniversary, to take place in June, 1906; from the Treasurer of the Leidy Memorial Committee, asking contributions for a Memorial to Dr. Joseph Leidy, to be presented to the city of Philadelphia; from the Königlich böhmische Gesellschaft der Wissenschaften, announcing the death of Karl Ritter von Koristka.

On the motion of Professor Webster it was

Voted, That Professor W. Trelease, of St. Louis, be requested to represent the Academy at the fiftieth anniversary of the Academy of Science of St. Louis. It was also

Voted, That the President be empowered to appoint delegates to represent the Academy at the celebration of the birth of Franklin, by the American Philosophical Society in April; and

to the celebration of the twenty-first anniversary of the Royal Geographical Society of Australasia.

The President announced the death of A. von Kölliker, Foreign Honorary Member in Class II., Section 3.

The Amendments to the Statutes not acted upon at the last meeting were then considered. The proposed amendments to Chapter II. were rejected. A new paragraph to Chapter X., equalizing the number of Resident Fellows in the three Classes, was also rejected.

It was then

Voted, To amend the Statutes and Standing Votes, as follows: —

Ch. I., Sec. 1. The word "Theology" inserted before the words "Philosophy and Jurisprudence."

Ch. III., Sec. 1. Omit in the first line the clause "from the next retiring Councillors."

Ch. IV., Sec. 1. For the clause "to summon extraordinary meetings upon any urgent occasion" substitute the phrase "to direct the Recording Secretary to call special meetings."

Ch. IV., Sec. 2. Omit.

Ch. IV., Sec. 3. To be numbered "2."

Ch. IV., Sec. 4. To be numbered "3."

Ch. V., Sec. 2. Omit the last sentence.

Ch. V., Sec. 3. Add the following sentence: "All bills incurred on account of the Rumford Fund, within the limits of the appropriation made by the Academy, shall be approved by the Chairman of the Rumford Committee."

Ch. V., Sec. 4. Add the following sentence: "All bills incurred on account of the C. M. Warren Fund, within the limits of the appropriations made by the Academy, shall be approved by the Chairman of the C. M. Warren Committee."

Ch. V., Sec. 5. Add the following sentences: "This Committee shall report to the Council in March of each year on the appropriations needed for the coming year. All bills incurred on account of publications, within the limits of the appropriations made by the Academy, shall be approved by the Chairman of the Committee on Publication."

Ch. V., Sec. 6. Add the following sentences: "This Committee, through the Librarian, shall report to the Council in March of each year, on the appropriations needed for the Library for the coming year. All bills incurred on account of the Library, within the limits of the appropriations made by the Academy, shall be approved by the Librarian."

Ch. V., Sec. 7. The President and Recording Secretary shall be a Committee on the general expenditures of the Academy. This Committee shall report to the Council in March of each year on the appropriations needed for the general expenditures for the coming year, and either member of the Committee may approve bills incurred on this account within the limits of the appropriations made by the Academy.

Ch. V., Sec. 8. An auditing Committee, to consist of two Fellows, for auditing the accounts of the Treasurer, with power to employ an expert and to approve his bill.

Ch. V., Sec. 9. In the absence of the Chairman of any Committee, bills may be approved by a member of the Committee designated by the Chairman for the purpose.

Ch. VI., Sec. 1. In line 6 omit the words "for nomination."

Ch. VI., Sec. 4. "Every persen taking any books, papers, or documents belonging to the Academy and in the custody of the Recording Secretary, shall give a receipt for the same to the Recording Secretary."

Ch. VII., Sec. 2. Read as follows after the first sentence: —

"He shall pay all bills due by the Academy, when approved by the proper officers (except those of the Treasurer's office, which may be paid without such approval). He shall sign all leases of real estate in the name of the Academy. All transfers of stocks, bonds, and other securities belonging to the Academy shall be made by the Treasurer with the written consent of one member of the Committee of Finance. He shall keep an account of all receipts and expenditures, shall submit his accounts annually to the Auditing Committee, and shall report the same at the expiration of his term of office or whenever called on so to do by the Academy or Council."

Ch. VII., Sec. 4. To be omitted.

Ch. VII., Sec. 5. To be numbered "4."

Chap. VIII., Sec. 2. Add "periodicals, etc." after "books" in line four.

Ch. VIII., Sec. 7. Omit in the second line of the first sentence all after "Academy."

Ch. IX., Sec. 1. After the word "notified" in line five insert the words "or at special meetings called for the purpose," and add the following paragraph: —

"Special meetings shall be called by the Recording Secretary at the request of the President or of a Vice-President or of five Fellows. Notifications of the special meetings shall contain a statement of the purpose for which the meeting is called."

Ch. IX., Sec. 2. Insert the word "Resident" before "Fellows" in line one. Insert the words "or special" after "stated," in line two.

Chap. IX., Sec. 3. Insert the word "Resident" before "Fellow" in line two and omit the words "residing in Boston or the vicinity."

Ch. X.. Sec. 2. Omit the words "for nomination" in line five. Omit the word "written" in line seven. Substitute "any" for "stated" in line nine. In the tenth line substitute for the words "during the interval between two stated meetings" the words "until the next stated meeting."

Ch. X., Sec. 6. Omit.

Chap. X., Sec. 7. To be numbered "6."

Ch. XI., Sec. 1, Line 2. For the word "meeting" substitute "stated meeting, or a special meeting called for the purpose."

Standing Votes.

Vote 2, Line 1. Prefix the words, "Associate Fellows, Foreign Honorary Members and" to the word "Resident."

Omit the second sentence. Add, "Exceptions to this rule may be made in special cases by vote of the Academy."

Vote 8. Add the clause: "and the approval of a bill incurred for such purposes by the Chairman shall be accepted by the Treasurer as proof that such certificate has been given."

On motion of Professor Webster it was

Voted, That the sum of five hundred and fifty dollars ($550) be appropriated from the income of the Rumford Fund for the immediate use of the Rumford Committee.

Professor E. H. Hall proposed certain amendments to the Statutes. In accordance with Chapter XI. of the Statutes, these proposed amendments were referred to the following Committee: —

The President, Corresponding Secretary, Recording Secretary, Treasurer, Professor Morgan, and Dr. Lyman.

The following communications were given: —

"Results of the Franco-American Expedition to explore the Atmosphere in the Tropics." By A. Lawrence Rotch.

"Comparison of Lunar and Hawaiian Craters." By W. H. Pickering.

The following papers were presented by title: —

"The Longitudinal Vibrations of a Rubbed String." By Harvey N. Davis. Presented by W. C. Sabine.

"On the Inconsistency of the Axiom of the Plane with the Supposition that the Sum of the Angles of the Rectilinear Triangle is less than 180°." By G. Hay.

"The Effects of Interbreeding, Crossbreeding, and Selection upon the Fertility and Variability of Drosophila." By W. E. Castle, F. W. Carpenter, A. H. Clark, S. O. Mast, and M. W. Barrows.

"On the Length of the Time of Contact in the Case of a Quick Tap on a Telegraph Key." By B. O. Peirce.

"On the Permeability and the Retentiveness of a Mass of Fine Iron Particles." By B. O. Peirce.

Nine hundred and sixty-fourth Meeting.

March 14, 1906. — STATED MEETING.

The Academy met at its house, 28 Newbury Street.

The PRESIDENT in the chair.

There were present eighteen Fellows.

In the absence of the Recording Secretary, W. M. Davis was appointed Recording Secretary, *pro tempore.*

The President announced the death of Professor Samuel Pierpont Langley, Associate Fellow in Class I., Section 2.

The Corresponding Secretary read a letter from M. P. Porzild, Director of the Danish Artic Station at Disco, Greenland, requesting contributions of publications on Arctic nature and biology.

The Chair announced that in accordance with a vote of the last meeting, the Academy would be represented at the Franklin celebration of the American Philosophical Society by the President and Professor W. M. Davis.

The following gentlemen were elected members of the Academy: —

Comfort Avery Adams, of Cambridge, to be a Resident Fellow in Class I., Section 4 (Technology and Engineering).

Edward Charles Jeffrey, of Cambridge, to be a Resident Fellow in Class II., Section 2 (Botany).

Walter Bradford Cannon, of Cambridge, to be a Resident Fellow in Class II., Section 3 (Zoölogy and Physiology).

Joseph Henry Beale, Jr., of Cambridge, to be a Resident Fellow in Class III., Section 1 (Philosophy and Jurisprudence).

George Foot Moore, of Cambridge, to be a Resident Fellow in Class III., Section 2 (Philology and Archaeology).

Albert Andrew Howard, of Cambridge, to be a Resident Fellow in Class III., Section 2 (Philology and Archaeology).

Thomas Nixon Carver, of Cambridge, to be a Resident Fellow in Class III., Section 3 (Political Economy and History).

Charles Benedict Davenport, of Cold Spring Harbor, N. Y., to be an Associate Fellow in Class II., Section 3 (Zoölogy and Physiology). Transferred from Resident Fellowship.

The Chair appointed the following gentlemen to serve as Nominating Committee: —

E. H. Bradford, J. H. Wright, L. J. Johnson.

In accordance with the report of the Committee appointed February 14, 1906, to whom were referred certain alterations of the Statutes, it was

Voted, To amend the Statutes as follows: —

Chap. I., Sec. 2. After the word "hundred," in the first line, insert the phrase "of whom there shall not be more than eighty in any one of the three classes."

Chap. II., Sec. 2. To read as follows: —

"There shall be nine Councillors, chosen from the Resident Fellows. At each annual meeting, three Councillors shall be chosen, by ballot, one from each Class, to serve for three years; but the same Fellow shall not be eligible for two successive terms. The nine Councillors, with the President, the three Vice-Presidents, the two Secretaries, the Treasurer, and the Librarian, shall constitute the Council. Five members shall constitute a quorum. It shall be the duty of this Council to exercise a discreet supervision over all nominations and elections. With the consent of the Fellow interested, they shall have power to make transfers between the several Sections of the same Class, reporting their action to the Academy."

Chap. II., Sec. 3. To read as follows: —

"The Council shall at its March Meeting receive reports from the Rumford Committee, the C. M. Warren Committee, the Committee on Publication, the Committee on the Library, the President and Recording Secretary, and the Treasurer, proposing the appropriations for their work during the year beginning the following May. The Treasurer at the same meeting shall report on the income which will probably be received on account of the various Funds during the same year.

"At the Annual Meeting, the Council shall submit to the Academy, for its action, a report recommending the appropriations, which in the opinion of the Council should be made for the various purposes of the Academy."

Chap. II., Old Sec. 3. To be numbered 4.

Chap. X., Sec. 3. To read as follows: —

"The nomination and election of Associate Fellows shall take place in the manner prescribed in reference to Resident Fellows."

Chap. X., Sec. 4. To read as follows: —

"The nomination and election of Foreign Honorary Members

shall take place in the manner prescribed for Resident Fellows, except that the nomination papers shall be signed by at least seven members of the Council before being presented to the Academy."

It was then

Voted, To meet on adjournment April 11, 1906.

Professor M. L. Fernald gave a communication on "Soil and Climatic Control of Plant Distribution in Eastern America."

Professor Barrett Wendell spoke on the "Universities of France."

The following papers were presented by title: —

"On the Conditions to be satisfied if the Sums of the Corresponding Members of two Pairs of Orthogonal Functions of x and y are to be themselves Orthogonal." By B. O. Peirce.

"On the Correction for the Effect of the Counter Electromotive Force of a Moving-Coil Galvanometer used Ballistically." By B. O. Peirce.

"The Accuracy of Musical Taste with Respect to Architectural Acoustics." By Wallace C. Sabine.

"Variation in Reverberation with Variation in Pitch." By Wallace C. Sabine.

"Athenian Lekythoi with Outline Drawing in Glaze Varnish on a White Ground." By Arthur Fairbanks. Presented by John H. Wright.

"A Theory of Thermo-Electric Action." By Edwin H. Hall.

"Studies in the Eupatorieae. I. Revision of the Genus Piqueria. II. Revision of the Genus Ophryosporus. III. The Genus Helogyne and its Synonyms. IV. Diagnoses and Synonymy of Eupatorieae and of Certain Other Compositae which have been classed with them." By B. L. Robinson.

Nine hundred and sixty-fifth Meeting.

APRIL 11, 1906. — ADJOURNED STATED MEETING.

The Academy met at its house, 28 Newbury Street.

VICE-PRESIDENT TROWBRIDGE in the chair.

There were present twenty-four Fellows.

The Corresponding Secretary read the following letters: —

From Professor Trelease, of St. Louis, giving an account of the discharge of his duties as the representative of the Academy at the celebration of the fiftieth anniversary of the Academy of Science of St. Louis; from Joseph H. Beale, Walter B. Cannon, George F. Moore, and E. C. Jeffrey, accepting Resident Fellowship; from Wilhelm Ostwald, accepting Foreign Honorary Membership; from F. W. Draper, resigning Fellowship; from the Smithsonian Institution, announcing the death of its Secretary, Samuel P. Langley.

The Chair announced the following deaths: —

Professor James M. Peirce, Resident Fellow in Class I., Section 1; Professor Nathaniel S. Shaler, Resident Fellow in Class II., Section 1.

The Corresponding Secretary moved and it was

Voted, That the request made by M. P. Porzild, for publications on Arctic nature and biology, be referred to the Library Committee.

A communication was given by Dr. Louis Bell on "Some Modern Illuminants and the Mechanical Theory of Light."

A communication was also given by Professor W. M. Davis on "The Desirability of a General Annual Meeting of New England Investigators."

At the conclusion of Professor Davis's remarks it was

Voted, that the question of a General Annual Meeting of the Academy and guests be referred to the Council.

The following paper was presented by title: —

"On a simple Device for Measuring the Deflections of a Mirror Galvanometer." By B. O. Peirce.

Nine hundred and sixty-sixth Meeting.

MAY 9, 1906. — ANNUAL MEETING.

The Academy met at its house, Newbury Street.

The PRESIDENT in the chair.

There were present twenty-six Fellows.

The Corresponding Secretary read a communication from the

Société d'Emulation d'Abbeville, asking contributions for a monument in honor of Boucher de Perthes.

The annual report of the Council was read.*

The annual report of the Treasurer was read, of which the following is an abstract: —

At the beginning of the year 1905–1906, a new system of accounts was adopted. The building No. 28 Newbury Street having been bought at a cost in excess of the amount of the Building Fund, this account was transferred to the General Fund. The balance of the General Fund Income was carried to principal, and the General Fund was reduced by setting off to the Publication Fund the sums which had been given for publication purposes.

General Fund.

Receipts.

Investments	$2,553.51	
Assessments	1905.00	
Admission fees	120.00	
Rent of offices	250.00	
Sundries	10.00	$4,838.51
Deficit		173.47
		$5,011.98

Expenditures.

General expenses	$3,424.06	
Library	1,587.92	$5,011.98

Rumford Fund.

Receipts.

Balance April 30, 1905	$191.20
Investments	3,259.42
	$3,450.62

* See p. 837.

Expenditures.

Research	$1,400.00	
Publication	1,174.67	
Library	157.09	
Publishing Rumford Pamphlets	229.03	
Miscellaneous	38.60	$2,999.39
Balance April 30, 1906		451.23
		$3,450.62

C. M. Warren Fund.

Receipts.

Balance April 30, 1905	$667.13
Investments	330.93
	$998.06

Expenditures.

Vault rent	$8.00	
Premium on bonds	50.00	$58.00
Balance April 30, 1906		940.06
		$998.06

Publication Fund.

Receipts.

Investments	$2,677.03	
Sale of Publications	92.58	$2,769.61

Expenditures.

Publication	$1,761.68	
Premium on bonds	21.25	
Vault rent	25.00	$1,807.93
Balance April 30, 1906		961.68
		$2,769.61

The following reports were also presented: —

Report of the Librarian.

The most important feature of the year was the removal of the Library from the third story of the Massachusetts Historical Society building to the new home of the Academy, Number 28 Newbury Street. This building (except the stack) was occupied in December, but the books were not moved until January and February of this year. Great care was taken by the movers, — Moore & Co., — and the placing of the books in the fireproof stack in the rear of the building and the current numbers of periodicals in the steel cases in the Meeting-room was successfully accomplished through the careful supervision of Mrs. Holden, the Assistant Librarian. In the same way the large stock of publications of the Academy was transferred during April to the basement of the building, but this must be regarded as a temporary arrangement only. The cost of moving the Library and belongings, which has been charged to the Building Fund, was $525.83.

The accessions during the year have been as follows: —

	Vols.	Parts of Vols.	Pams.	Maps.	Total.
By gift and exchange	237	2280	227	5	2749
By purchase — General Fund . .	16	1228			1244
By purchase — Rumford Fund . .	8	376			384
Total	261	3361	227	5	4377

3 volumes recommended by the Rumford Committee were purchased at an expense of $13.03 from the special appropriation of $50 for books.

84 books have been borrowed from the Library by 27 persons, including 13 Fellows, and one Library (Clark University Library). The Library has been consulted many times when no books were taken.

Of the books borrowed, all have been returned for the annual examination except 10 (taken out by two people). Of the 8 volumes reported missing a year ago, all have been returned.

The expenses charged to the Library are as follows: Miscellaneous, $587.92; Binding, $482.50, General, and $35.20, Rumford Funds; Subscriptions, $416.25, General, and 108.86, Rumford Funds; making a total of $1486.67 for the General and 144.06 for the Rumford Funds.

It is impossible for one person to properly care for a library of this

size in addition to the duties of the Assistant Librarian required by the business of the Society, and it is hoped that the type-written catalogue, left unfinished by the death of Dr. Holden, can be completed this year by an experienced cataloguer. It will soon be necessary to re-bind a large number of sets of books, which, owing to the perishable nature of the bindings formerly used, are now crumbling away.

A. LAWRENCE ROTCH, *Librarian.*

MAY 9, 1906.

REPORT OF THE RUMFORD COMMITTEE.

From the appropriation of $1000 in aid of research voted at the last annual meeting, grants have been made to the following persons in aid of the researches specified.

October 11, 1905. Arthur B. Lamb, of Harvard University, Specific Heat of Salt Solutions, $200.

December 13, 1905. John A. Parkhurst, of the Yerkes Observatory, for the purchase of a Hartmann photometer, $225.

Professor Charles B. Thwing, of Syracuse University, Thermo-Electric Power of Metals (second appropriation), $400.

March 14, 1906. Professor Edwin H. Hall, of Harvard University, Thermo-Electric Properties of Metals, $100.

Professor Frederic E. Kester, of the Ohio State University, Joule-Thomson Effect in Gases, $50.

April 11, 1906. Professor Edwin H. Hall, of Harvard University, Thermo-Electric Properties of Metals (additional), $25.

The appropriation of $100, made in 1903 to Professor Sidney D. Townley for the construction of a stellar photometer has been returned to the Treasurer of the Academy, as a change of location precludes carrying out the investigation which he had planned.

The investigation of Professor Dewitt B. Brace on Double Refraction in Gases in an Electrical Field, for which grants had been made amounting to $400, has been brought to a close by his sudden death. The appropriation had been mostly expended in the construction of apparatus, and it is hoped that the research begun by him may be prosecuted by one of his colleagues.

The pamphlet, relative to the scientific results which have been obtained by the application of the bequest of Count Rumford, referred to in the last Annual Report as in press, has been issued, and copies have been sent to a large number of physicists.

The following papers have been published at the expense of the Rumford Fund during the past year, the first mentioned in the Memoirs of the Academy, the others in the Proceedings.

"The Spectrum of Hydrogen in the Region of Extremely Short Wave-Length." By Theodore Lyman.

"Report of an Experiment to detect the FitzGerald-Lorentz Effect." By Edward W. Morley and Dayton C. Miller.

"Surface Tension at the Interface between Certain Liquids and Vapors." By Arthur L. Clark.

"The Transition Temperature of Sodic Bromide: a New Fixed Point in Thermometry." By Theodore W. Richards and Roger C. Wells.

"A New Method of Standardizing Thermometers below 0°C." By Theodore W. Richards and Frederick G. Jackson.

"A Method of determining Thermal Conductivity." By F. A. Laws with F. L. Bishop and P. McJunkin.

"On Thermo-Electric Heterogeneity in Certain Alloys, especially German-Silver." By Edwin H. Hall, L. L. Campbell, and S. B. Serviss.

"Studies on Fluorite."

1. The Fluorescence of Fluorite.
2. The Thermo-Luminescence of Fluorite.
3. Gaseous and Liquid Inclusions in Fluorspar. By Harry W. Morse.

"The Elimination of Thermometric Lag and Accidental Loss of Heat in Calorimetry." By Theodore W. Richards, Lawrence J. Henderson, and George S. Forbes.

1. Two New Methods of avoiding Error in Calorimetry. By Theodore W. Richards.
2. The Constancy of Results obtained by one of the New Methods. By Theodore W. Richards and George S. Forbes.
3. The Comparison of the two Methods, and the Exact Estimation of Adiabatic Rise of Temperature. By Theodore W. Richards and Lawrence J. Henderson.

"Measurement of Various Thermal and Electrical Effects, especially the Thomson Effect in Soft Iron." By Edwin H. Hall, Messrs. Churchill, Campbell, and Serviss.

"Thermal Expansion of Hydrogen and Carbon Dioxide under Constant Pressure." By Theodore William Richards and Kenneth Lamartine Mark.

"The Relative Positions of the Arc and Spark Lines of the Spectra of Titanium, Zinc, and Iron." By Norton A. Kent.

Also reports of progress of researches not yet ready for publication have been received from Messrs. Frederic L. Bishop, John A. Dunne, William J. Humphreys, Ralph S. Minor, Charles B. Thwing, John Trowbridge, Robert W. Wood.

The expenditures of the past year for publication have been much in excess of the ordinary amount. This is due chiefly to the unusually large number of papers which have been presented, mostly based on researches aided by the Rumford Fund. Appropriations, amounting to $1350, have been made by the Academy to meet this expense.

The Committee has given much thought to the question of an award of the Rumford Premium, and has considered the claims of several persons, but has no recommendation to make for the present year.

CHAS. R. CROSS, *Chairman.*

MAY 9, 1906.

REPORT OF THE C. M. WARREN COMMITTEE.

The C. M. Warren Committee begs leave to report that the Committee recommended no grants from the Warren Fund during the past year. This was due to the fact that the income received from the fund in 1904 was very small, owing, it is said, to changes and additions that were being made to the Warren Asphalt Plant.

Respectfully submitted,

LEONARD P. KINNICUTT, *Chairman.*

MAY 9, 1906.

REPORT OF THE PUBLICATION COMMITTEE.

During the period beginning May 1, 1905, and ending April 30, 1906, two numbers of the Proceedings, Volume XL. (Nos. 23 and 24), and thirty-two numbers of Volume XLI. have been published, likewise one biographical notice, making in all 820 pages and 14 plates. Thirteen numbers of the Proceedings (Volume XLI., Nos. 1, 2, 5, 6, 10, 12, 16, 20, 21, 22, 25, and 27) were paid for out of the income of the Rumford Fund.

One number of the Memoirs (Volume XIII., No. 3, pp. 121–146, plates III.–VIII.) has been published at the expense of the Rumford Fund.

The unexpended balance of appropriations from the General Fund for publications on May 1, 1905, was $278.55; the appropriation for the year 1905–06, $2,400, and the receipts from sales of publications $92.58

making the whole amount available for publications $2,771.13. The expenditures for publications have been from the General Fund $1,761.68, leaving an unexpended balance from the General Fund of $1,009.45. The expenditures on account of the income from the Rumford Fund have been $1,174.67.

Beginning with Volume XLII., the Proceedings will be printed from newer and better type, and at the top of the cover the volume and number will be indicated in bold Arabic numerals, to aid the Librarian in the distribution of copies.

E. L. MARK, *Chairman.*

MAY 9, 1906.

FINANCIAL REPORT OF THE COUNCIL.

The income, for the year 1906–07, as estimated by the Treasurer, is as follows: —

General Fund	Investments	$1510	
	Assessments	1800	
	Rent of offices	1200	$4510
Publication Fund	Appleton Fund investments	$ 536	
	Centennial Fund investments	2111	$2647
Rumford Fund	Investments		$2511
C. M. Warren Fund	Investments		280

The following appropriations are recommended: —

GENERAL FUND.

House expenses	$1400	
Library expenses	1400	
Books, periodicals, and binding	900	
Expenses of Meetings	250	
Insurance	75	
Treasurer's office	150	$4175

RUMFORD FUND.

Research	$1000	
Periodicals and binding	150	
Books and binding	50	
Publication	700	
To be used at discretion of Committee	250	$2150

C. M. WARREN FUND.

Research	$600

PUBLICATION FUND.

Publication	$2600

In accordance with the recommendations in the foregoing report it was

Voted, To appropriate for the purposes named, the following sums: —

From the income of the General Fund	$4175
From the income of the Rumford Fund	2150
From the income of the C. M. Warren Fund	280
From the accumulated income of the C. M. Warren Fund	320
From the income of the Publication Fund	2600

On the motion of the Treasurer, it was

Voted, That the annual assessment for the ensuing year be ten dollars ($10).

The Corresponding Secretary proposed that the Statutes be so changed as to permit the establishment of a Retired list, which proposition was referred to the Council.

The following report of the Committee on the Library was read: —

The Committee on the Library desire to submit through the Librarian, the following recommendation to be acted upon by the Academy: That the Librarian be authorized, at his discretion, to dispose of, through sale, exchange, or gift, such volumes as are not germane to the purposes of this Library. Exceptions are to be made in the case of copies presented

by the authors, other than those received under the Bowdoin bequest, which under the terms of the bequest may be sold.

The Committee desire the opinion of the Academy concerning the disposition of a valuable work, written by John Eliot in the Indian language, of which the value exceeds two hundred dollars.

On motion of the Librarian it was,

Voted, That the Librarian be authorized to dispose of such books as are not germane to the purposes of this Library.

Inasmuch as the Massachusetts Historical Society has refused to charge any rent for the use of the Academy rooms in its building for the past year, it was

Voted, To present to the Massachusetts Historical Society certain volumes which have been selected by the Library Committee, in grateful recognition of the action of that Society.

The annual election resulted in the choice of the following officers and committees: —

WILLIAM W. GOODWIN, *President.*
JOHN TROWBRIDGE, *Vice-President for Class I.*
HENRY P. WALCOTT, *Vice-President for Class II.*
JOHN C. GRAY, *Vice-President for Class III.*
EDWIN H. HALL, *Corresponding Secretary.*
WILLIAM WATSON, *Recording Secretary.*
CHARLES P. BOWDITCH, *Treasurer.*
A. LAWRENCE ROTCH, *Librarian.*

Councillors for Three Years.

IRA N. HOLLIS, of Class I.
JAMES C. WHITE, of Class II.
WILLIAM R. WARE, of Class III.

Councillor for One Year.

In place of JOHN H. WRIGHT, resigned,
CHARLES R. LANMAN.

Finance Committee.

WILLIAM W. GOODWIN,
ELIOT C. CLARKE,
FRANCIS BARTLETT.

Rumford Committee.

CHARLES R. CROSS, ERASMUS D. LEAVITT,
EDWARD C. PICKERING, ARTHUR G. WEBSTER,
THEODORE W. RICHARDS, ELIHU THOMSON,
LOUIS BELL.

C. M. Warren Committee.

LEONARD P. KINNICUTT, ROBERT H. RICHARDS,
SAMUEL CABOT, ARTHUR M. COMEY,
ARTHUR MICHAEL, HENRY P. TALBOT,
CHARLES R. SANGER.

The following standing committees were appointed by the Chair: —

Publication Committee.

WALLACE C. SABINE, of Class I., EDWARD L. MARK, of Class II., CRAWFORD H. TOY, of Class III.

Library Committee.

HARRY M. GOODWIN, of Class I., SAMUEL HENSHAW, of Class II., HENRY W. HAYNES, of Class III.

Auditing Committee.

A. LAWRENCE LOWELL, FREDERICK J. STIMSON.

The following communications were given: —

"Delphi." By Professor W. W. Goodwin.

"Studies in the Text of Plato's Republic." By Professor J. H. Wright.

The following papers were presented by title: —

"On the Convergence and the Differentiation of Certain

Classes of Trigonometric Series." By W. C. Brenke. Presented by Maxime Bôcher.

"On the Ionization of Fused Salts." By H. M. Goodwin and H. A. Wentworth.

"On the Coefficients of Compressibility and Expansion of Ether and Alcohol." By A. W. Smith. Presented by Edwin H. Hall.

"Some Stages in the Spermatogenesis of the Honey Bee." By E. L. Mark and Manton Copeland.

"On the Thomson Effect and the Temperature Coefficient of Thermal Conductivity in Soft Iron between 114° and 204° C." By Edwin H. Hall, L. L. Campbell, and S. B. Serviss.

"Contributions to the Cytology of the Entomophthoraceae." By Lincoln Ware Riddle. Presented by W. G. Farlow.